

## ENERGY EFFICIENCY SUCCESS STORY | 2012

### SOUSA FAMILY HOME

Prepared by Concord Light, your local electric utility



*Lorraine Sousa lives with her three daughters in this 1950's 1,530 sq. ft. Cape on Union Street near Emerson Playground.*

*She bought the house in the spring of 2011, and immediately set about improving her home's energy performance.*

#### Energy Audit

Concord Light performed a no-cost energy audit of Lorraine's home.

*"I wanted the house to be as efficient as possible as soon as possible, in order to save money." -- Lorraine*

#### Recommended Upgrades Included:

- Replacement of 23 Year Old Oil Heating System and Ductwork
- Sealing New Ductwork at All Joints before Insulating
- Attic Insulation
- Sill Insulation in Basement

The auditor also recommended that Lorraine have her walls examined by an insulation professional to determine if it would be worthwhile to add more insulation.

## Heating and Air Conditioning System Improvements



*The 23-year old forced hot air oil-fired furnace was replaced with a modern natural gas-fired heating system.*



*The central air conditioning system was also replaced. Modern ductwork was installed, sealed and insulated in order to transport heated and cooled air to the living area with as little energy loss as possible.*

*"Removing the big oil tank from the basement created more room downstairs."  
-- Lorraine*

### National Grid's MassSAVE Program

Once Lorraine replaced her oil-fired furnace with a natural gas-fired heating system, she became a National Grid natural gas heating customer. At that point, she contacted National Grid's MassSAVE program about rebates for the attic and sill insulation that Concord Light's auditor had recommended.

MassSAVE assessed the insulation needs in the attic, sill and walls of the Sousa home, arranged for a pre-qualified contractor to complete the insulation work, and provided rebates that covered 75% of the cost of the work.

### Attic Improvements



*Insulating and sealing the attic dormers not only saved energy but also eliminated the ice dams that had previously caused some water damage.*

### Basement Improvements



*The rim joists, where the house sits on the foundation, were sealed and insulated.*

### Wall Insulation



*Some clapboards were removed so that insulation could be blown into the walls of Lorraine's home. The finish was marred slightly in spots where the siding was nailed back on, as shown. Lorraine later sanded, buffed and painted those spots to restore the finish.*

## Insulation Project Schedule and Cost

| Measure                                 | Year Installed | Cost to Lorraine |
|---|----------------|------------------|
| Attic and Basement Sealing & Insulation | 2011           | \$250            |
| Wall Insulation                         | 2012           | \$350            |

## Heating, Air Conditioning and Hot Water Heating System Costs

| System           | Cost     |
|------------------|----------|
| Heating & AC     | \$11,000 |
| Hot Water Heater | \$4,000  |

## Other Energy Efficiency Measures

Lorraine took a comprehensive approach to improving her home's energy performance. In addition to the major upgrades described above, she looked for other ways to reduce her energy costs.

In order to minimize use of her air conditioning system, Lorraine:

- Replaced the ½ screens that were in the windows when she bought the house with full screens.
- Installed ceiling fans in the kitchen and 2<sup>nd</sup> floor bedrooms.

## MassSave Rebates

Qualifying natural gas-heating households are eligible to receive a MassSAVE rebate worth 75% of the cost of insulation work completed *each year*, up to \$2,000 per year. So, by spacing out the insulation work over two years, Lorraine maximized the rebates she received and minimized her out-of-pocket expenses.

## Financing

Lorraine got a 2.3% loan through Hanscom Credit Union to finance the purchase of the new heating, air conditioning and hot water heating systems. She expects to have the loan paid off in 4 years.

## Central Air Conditioning Rebate

Lorraine received a rebate of \$375 from Concord Light to help offset the cost of her energy efficient air conditioning system.



## Other Energy Efficiency Measures, (con't)

In order to minimize lighting energy use, Lorraine:

- Had LED lights installed under the cabinets in the kitchen.
- Installs compact fluorescent bulbs whenever incandescent bulbs need to be replaced.



In order to reduce the energy used for heating and cooling, Lorraine:

- Installed storm doors on her front and side doors.
- Replaced an old back door containing a glass window with an insulated door.
- Installed a programmable thermostat for automatic temperature setbacks.

Finally, Lorraine purchased an ENERGY STAR-certified, energy and water efficient front-loading washing machine for her home.



For more information on Concord Light's free home energy audits and energy efficiency rebates, go to [concordma.gov/cmlp](http://concordma.gov/cmlp) or contact Jan Aceti at 978-318-3151 or [jaceti@concordma.gov](mailto:jaceti@concordma.gov).